

REMARKS

I. Status of claims

Claims 13-18 had been withdrawn due to the restriction requirement. Claims 1-12 and 19-21 remain for consideration.

II. Response to obviousness rejection of claims 1-12 and 19-21

The Examiner continues to reject claims 1-12 and 19-21 as being obvious over *Bobst et al.* (US 4,372,758) in view *Sobukawa et al.* (US 6,492,298). Applicants respectfully request that the Examiner reconsider and withdraw the rejection for the reason that follows.

To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

The claimed invention is not obvious because there is no suggestion or motivation to combine *Bobst et al.* and *Sobukawa et al.* and even if the referenced are combined, the claimed invention does not follow the combined reference teachings.

Bobst et al. discloses the following:

- a) a process for removing unpolymerized gaseous monomers like ethylene from a solid olefin polymer, which process comprises
- b) introducing a purge gas stream like nitrogen into a purge vessel containing that solid olefin polymer,

- c) the gas stream taking up the unpolymerized gaseous monomers ("countercurrently contacting polymer and purge gas");
- d) discharging a gas stream laden with the unpolymerized gaseous monomers from the vessel; and
- e) recycling a portion of the discharged gas stream to the purge vessel,
- f) wherein the fed gases contain substantially no oxygen.

Subokawa et al. discloses an ordinary-temperature purifying catalyst which can decompose and remove environmental loading materials like ethylene in an ordinary temperature range by contacting the catalyst with air containing ethylene.

However, combining these teachings of *Bobst et al.* and *Sobukawa et al.* is neither obvious nor could such a combination result in the present invention.

The process of the present invention comprises steps a) to e) of the Bobst et al. process. However it lacks its feature f) and has additionally the following steps (see claim 1):

- g) adding oxygen to the discharged gas stream
- h) catalytically oxidizing the unpolymerized gaseous monomers, thereby forming an oxidized gas stream;
- i) recycling (a portion of) the oxidized gas stream; and
- j) keeping the concentration of oxygen in the vessel below the explosive limit of about 7% by volume.

Bobst et al. refers to a process for removing unpolymerized gaseous monomers like ethylene from a solid olefin polymer. As such, the *Bobst et al.*'s process is an improvement over prior state of the art. However, there is no suggestion in Bobst et al. to further improve the process.

Subokawa et al. refers to a specific catalyst for purifying air from, for example, ethylene. Such a catalyst for catalytic oxidation can in general be used to purify the discharge gas of a purge vessel if air is used as purge gas for removing

unpolymerized gaseous monomers from solid olefin polymer (see page 1, lines 17 to 18 of the present specification). However, there is no indication in *Subokawa et al.* that its specific catalyst could be used for that purpose. The only disclosed field for using the specific catalyst of *Subokawa et al.* for removing ethylene is preventing fruit and vegetables from chronologically aging (see *Subokawa et al.*, column 4, line 57 to column 5, line 2).

Accordingly, there are no hints in *Subokawa et al.* for modifying any process for removing unpolymerized gaseous monomers like ethylene from a solid olefin polymer. Moreover, as already mentioned above, there is also no suggestion in *Bobst et al.* to further improve such process. Thus, there is no motivation for a person skilled in the art to combine the teachings of *Bobst et al.* and *Subokawa et al.*

However, if a person skilled in the art (of olefin polymerization) getting notice of the teaching of *Subokawa et al.* would be forced to combine the process of *Bobst et al.* with the catalyst of *Subokawa et al.*, he or she might come to the idea of replacing the flare of *Bobst et al.* for oxidizing ethylene by the oxidation catalyst of *Subokawa et al.*, perhaps to save energy cost as postulated by the Examiner in the first full paragraph of page 5 of this Office Action dated June 4, 2009. However, that combination would not result in the process of the present invention as the oxidized gas leaving the flare is offgas and not recycled to the purge vessel.

That means, there is no motivation at all in *Subokawa et al.* to make all those modifications to the process of *Bobst et al.* to arrive at the present inventions, which includes the following modifications:


- allowing oxygen to be present in the purge vessel
- adding oxygen to the gas stream discharged from the purge vessel
- placing an oxidation catalyst in the gas line after the oxygen feeding point and oxidize the unpolymerized gaseous monomers; and
- keeping the concentration of oxygen in the vessel below the explosive limit of about 7% by volume.

There is also no hint that such a modification will result in an especially safe and inexpensive way of removing residual monomers from polymer particles (see page 2 lines 1 to 3 of the present specification).

It is improper for the Examiner to argue that all those features were within the level of ordinary skill at the time the claimed invention was made while neither the references nor the Examiner provides such evidence; the Examiner's arguments are rather hindsight reasoning solely based on Applicants' disclosure.

Applicants respectfully request that the Examiner withdraw the rejections and allow remaining claims 1-12 and 19-21. Applicants invite the Examiner to telephone their attorney, Shao-Hua Guo, at (610) 359-2455 if a discussion of the application might be helpful.

Respectfully submitted,
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